

GEORGE VENABLES VERNON was the only son of Mr. John Venables Vernon, of the firm of Vernon and Edge, engravers to calico printers, David Street, Manchester, and was born on October 7, 1831. He went to a school kept by a Mr. Williamson, of Stretford Road, Manchester, and afterwards studied for some years under a private tutor. He had a great liking for scientific pursuits generally, but more especially for meteorology. He was elected a Fellow of the Royal Astronomical Society on January 14, 1853, and in 1861 was elected a member of the Manchester Literary and Philosophical Society. He contributed many papers, chiefly on meteorological subjects, to the *Proceedings* and *Memoirs* of the latter society, and was for several years secretary of its physical and mathematical section. When Mr. Glaisher was organising, in 1848, the system of meteorological observations at different stations over the country, the results of which are published in the Registrar General's Reports, Mr. Vernon expressed his willingness to become an observer, and his observations were made and published regularly from 1849 till nearly the date of his death. He was a Fellow of the Meteorological Society and of the Anthropological Society, and a member of the Meteorological Societies of Scotland and France. He carried on the business of a cotton spinner. In private life Mr. Vernon was genial and kind-hearted, and he was very fond of music and other accomplishments. He had a severe illness—an attack of congestion of the brain—a year or two before his death, from the effects of which he never wholly recovered; he suffered much during the last year of his life, and died suddenly of heart disease on January 11, 1878. He leaves a widow.

ANGELO SECCHI was born at Emilia, Reggio, on June 29, 1818. He attended the school of the Jesuit College of the district, where he was grounded in Greek and Latin.

At the age of 15 years he entered the Company of Jesus, and after terminating his noviciate at the Collegio Romano, he lectured for a year in Rome on grammar and the rudiments of philology; after which he was sent by his superiors to conduct the classes of physics and mathematics in the College at Loretto, where he distinguished himself by his concise and clear method of teaching.

In 1844 he commenced his theological studies preparatory to entering the Church, and continued these without interruption until he was ordained priest on September 12, 1847.

He remained in Rome, lecturing at the Collegio Romano, till March 1848, when political disturbances having arisen in Italy, he was forced, with the rest of his order, to quit his home and go into exile. With many others he came to England and was sent to the Roman Catholic College at Stonyhurst, where, having nothing better to do, he devoted himself to the study of mathematics, until, on October 24, 1848, with twenty-one of his

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 companions in misfortune, he sailed from Liverpool, arriving at New York on November 19; thence he proceeded to the Georgetown University near Washington, where, while teaching the elements of natural science, he found time to pursue his favourite studies, working in the College Observatory, then directed by Father Curley.

Professor De Vico having died in London in 1849, Secchi was recalled by the General of the Order to succeed him in the chair of astronomy, and to direct the Observatory of the Collegio Romano.

He left Georgetown on September 21, and came to England, visiting the Royal Observatory, Greenwich, and thence passed on to Paris, re-establishing the broken communications between the Observatories.

He had been but a short time in his new position when he set about the foundation of a new Observatory in the Collegio Romano.

Departing from usual principles, he placed his instruments on the top of one of the massive piers which support the dome of the Church of Sant' Ignazio. The new Observatory was formally opened in 1852, and was speedily provided with an excellent refractor by Merz and a fine sidereal clock by Dent. Aided by the munificence of His Holiness the Pope, he established in the same place a very complete Magnetical Observatory. In the course of his meteorological studies he was led to the construction of his celebrated Meteorograph, an instrument by which automatic registrations of the barometer, thermometer, winds, and rain are made at short intervals of time. One of these was sent to the Paris Exhibition of 1867, and was esteemed so highly that the Emperor Napoleon III. conferred upon Padre Secchi the decoration of the Legion of Honour, and the Emperor of Brazil gave him the Grand Cordon of the Order of the Rose.

Probably Secchi's greatest work was the division of stellar spectra into four great groups or classes, viz. :—

Type 1. In which the hydrogen lines are very marked. To this group belong *Sirius*, *Vega*, *Altair*, *Regulus*, and *Rigel*, and about half the stars in the heavens.

Type 2. In which there are numerous fine dark lines, as in the spectrum of our own Sun, and in *Pollux*, *Arcturus*, *Aldébaran*, *Procyon*, and  *$\alpha$  Ursæ Majoris*.

Type 3. In which the spectrum is divided by a system of nebulous bands, which are rather more definite towards the violet end, as, for example, in the spectrum of  *$\alpha$  Herculis*.

Type 4. In which the spectrum is divided by broad nebulous bands, very definitely defined on the less refrangible side. To this group belong many of the small deep red stars.

Secchi was the first to point out the characteristic features of these groups. He gave considerable labour to examining and classifying stellar spectra, and published numerous catalogues and lists of star spectra, two of the most important of which are

*Catalogo delle stelle di cui si è determinato lo spettro luminoso*, published at Paris in 8vo. in 1867, and *Sugli spettri Prismatici delle Stelle Fisse*, published in Rome in 8vo. in 1868.

Secchi published regularly the *Memoria dell' Osservatorio*, and these were supplemented by the *Bulletino meteorologico dell' Osservatorio del Collegio Romano*.

He was employed by the Papal Government in 1854 to execute the measurement of a base line, a full description of which appears in his Memoir, *Sulla Mesura della base Trigonometrica eseguita sulla Via Appia nel 1854-5*.

He was also commissioned by his Government to design and superintend the erection of the lighthouses on the coasts of the States of the Church, and at another time the schemes for the water supply of several Roman towns were confided to his skill and judgment.

In 1860 he was sent to Spain for the observation of the Eclipse of the Sun on July 18. Working in conjunction with Señor Aguilar, of Madrid, he was fortunate enough to obtain four photographs of the corona during the total phase.

In 1862 he proceeded to Paris, where he represented his Government at the International Commission on the Metric System.

On September 20, 1870, with the entrance of the Italian troops into Rome, the Papal civil dominion passed away.

The decrees of the new Government against the Church are a matter of history upon which it is not necessary here to dwell; but it will ever be to the honour of the Administration that arrangements were made by special Acts of Parliament to enable our illustrious Associate to continue to occupy the Observatory, which, under his control, had attained a worldwide fame.

In December of the same year he was sent to Augusta, in Sicily, to observe the Solar Eclipse of December 20.

Early in his scientific career the various great Societies recognised his works and placed his name on the list of their Foreign Associates.

The Royal Society elected him November 20, 1856. He became Associate of our Society in June 1853, and he was also Member of the French Académie des Sciences, and of the Imperial Academy of St. Petersburg.

In Italy he was one of the Società Italiana de XL., and was for some years President of the Accademia dei Nuovi Lincei.

The last few years of his life, feeling that his vital power was slowly ebbing, he abandoned active observations, and devoted himself to study, though always controlling and directing the researches of his valued and indefatigable assistants.

Space forbids the rehearsal of the titles of all Secchi's writings. Up to the year 1863 upwards of 200 Memoirs and papers were contributed by him to various scientific bodies and to journals with which he corresponded.

His larger works, which may be mentioned, are the "Measure-

ment of the Base Line on the Via Appia," to which we have already referred, and

1. *Il Quadro fisico del Sistema Solare.*
2. *L'unità delle forze fisiche*, a work which has gone through two Italian editions and has been translated into French and German.
3. *Le Soleil*. Two French editions; also translated by Schellen into German.
4. *Elementi di Astronomia* (lithographed for the use of his students).
6. *Le Stelle*.
7. *Lezioni di Fisica Terrestre* (for the young).

A month before his death appeared, at Milan, *Le Stelle*, which forms one of a valuable series of Popular Science volumes.

In this work he sums up his work on the Physical Constitution of the Stars, to which he had devoted so great a portion of his career. His last work, *Lezioni di Fisica pei Giovani*, is now in the press.

Early in January 1878 illness forced him to take to the bed from which he was fated never to arise.

Though aided by the first surgeons of the University, science was unable to cope with nature, and terrible disease terminated, at the age of only 59 years and three months, a career which had shed lustre on his country and had added another to the long list of names of which the Jesuits are so justly proud.